

Wertheimer. He gave a short review of the various attempts at constructing calculating machines, noticing the Roman Abacus, the calculating boxes of the Chinese and Russians; the several classes of instruments invented by Napier in 1617, by Perault and others in 1720, and subsequently, the slide rule, invented by Michael Scheffé, in 1690, and the more important machines attempted by Pascal, in 1640, by Morland, in 1673, by Gersten and by Leibnitz, which were submitted to the Royal Society of London and the Académie des Sciences in Paris. He then mentioned the machine of Mr. Babbage, upon which upwards of 20,000 had been expended before the project was abandoned, and the finished part, which formed tables of progression up to five figures, was assigned to the Museum of King's College, London.

Dr. Roll's machine appeared very simple, and its results, which were severely tested, were very accurate; it performed all the operations in arithmetic from simple addition, subtraction, multiplication, and division of numbers, or of pounds, shillings, and pence, to vulgar and decimal fractions, involution and evolution, and arithmetical and geometrical progression, with an amazing rapidity; it appeared particularly adapted for checking long calculations of quantities, for contractors, for the merchant's counting-house, or for government offices.

The same principle had been adopted as counters for rotary or reciprocating machines, and they appeared, from the compactness of their form and their regularity of action, to be well adapted for the purpose.

A collection of specimens were exhibited of a new material for architectural decoration. It was termed the "Cannable composition," and was stated to be composed of hemp, with a resinous mixture, which, after a careful preparation in sheets, was forced by powerful presses into metal moulds, producing very sharp ornaments, in high relief. The detail of this mechanical arrangement was promised by Mr. B. Albano, C. E., on a future occasion. The ornaments were stated to be as hard, to bear a blow of a hammer; they were very light and elastic, resisting the action of heat or cold, and of water, without change of form. Mr. Ponsonby, agent, of the Regent Circus, Piccadilly, explained that the specimens were capable of being bronzed, gilt, or painted, as to produce an excellent effect for ceilings, and other internal decorations; and it was stated that the price was from ten to twenty per cent. below that of any other material in use for a similar purpose.

The monthly ballot for members took place, and the following gentlemen were elected: Messrs. S. Robinson and J. Fowler as members; Messrs. R. Cowen, B. H. Blyth, J. Wilson, J. Houldsworth, A. J. Robertson, J. T. Blackburn, Annes Coffey, J. C. C. Curtis, and G. Nasmith, as associates.

The following papers were announced to be read at the meeting of February 13th:—

No. 659. "Results of experiments on a vessel called the 'Liverpool Screw,' fitted with Grantham's patent engine and screw propeller." By J. Grantham, Assoc. Inst. C.E.

No. 594. "Description of a Bridge across the River Suanam, in Portuana." By T. Rhodes, M. Inst. C.E.

No. 616. "Description of an hydraulic traversing frame at the Bristol terminus of the Great Western Railway." By A. J. Dodson, Assoc. Inst. C.E.

**BRITISH MUSEUM.**—By a Parliamentary return, the annual estimate charge for the British Museum to Lady-day next, is stated to be 34,975*l*. The return embraces nine divisions, including the number of persons who have visited the institution for the last six years. From Christmas, 1856, to Christmas, 1857, the number was 321,181; from Christmas, 1857, to Christmas, 1858, the number was 266,008; to 1859, 260,850; to 1860, 247,249; to 1861, 19,374 (?); and to Christmas, 1862, 247,118.

No fewer than 5,627 visits were made in the year 1862 to the galleries of sculpture, and 8,781 to the print-room; it is stated in respect to the reading-room, that "the number of books returned to the shelves of the general library from the reading-room is 142,118; to the Royal Library, 27,408; to the cabinet of medals they are kept for the use of readers from day to day, 78,470; to the shelves of the reading-room, about 116,000; altogether, 359,452 volumes—in an average, 1,330

## PROJECTIONS IN BUILDING.

**QUEEN-SQUARE.**—On Saturday, Jan. 20, several gentlemen, residents in the neighbourhood of Eaton-square, attended at this court, anxious to hear the proceedings in a complaint laid by Mr. Foxall, the district surveyor of St. George's, Hanover-square, against Charles James Freake, an extensive builder, for having added to the side front of Lord Denbigh's house, in Elizabeth-street, Eaton-square, a projection of thirty-three feet in length, and seven feet in breadth, the same not being an open portion.

An application having been made to defer the proceedings until the arrival of Mr. Rodkin, the barrister,

Mr. Foxall said it would be unnecessary, as in consequence of a recent decision at quarter sessions, he felt it would be useless to go on with the case. The magistrate would remember having, about a month since, convicted a medical gentleman of the name of Griffiths, on his (Mr. Foxall's) complaint of a similar offence to the present. Mr. Griffiths gave notice of appeal, and the case came on by special appointment on last Monday at sessions, when the chairman gave up adjudicating the conviction. He did this in so sudden, so positive, and so determined a way, that he (Mr. Foxall) felt that it would be an absolute waste of time to proceed upon this, which precisely resembled the former complaint, and he was more particularly brought to this conclusion by the conviction in the former case. He had, however, although the court had said the magistrate was right in the view he had taken of the matter.

The complaint was then withdrawn.

## Correspondence.

### MANUFACTURING ENCAUSTIC AND ORNAMENTAL TILES BY MEANS OF MACHINERY.

SIR,—Some little time since being engaged in arranging machinery for a particular purpose, it occurred to me that I might be able to apply its principles for the purpose of making ornamental tiles and slabs of various kinds.

With this view, I devoted what little time I could to the consideration of the subject, and have very much reason to believe that ornamental tiles may be made much more rapidly, as well as improved in appearance, by the use of such a machine; which will be the means of extending the practical application and of more frequently introducing this species of architectural embellishment.

The patterns for the most simple of these kinds of tiles are first of all to be drawn on wood, of the size required, and are then to be cut out in the usual way, from which wood-patterns casts are to be taken either in good plaster of Paris or by the means of the electrolyte, which is perhaps the best method; by this operation a matrix will be obtained from which to take the working casts, in some hard, close-grained metal—as iron, which should be afterwards case-hardened. These casts are then to be fixed in the frame of the machine, and made to operate on the various earths and clays prepared for that purpose, and so imprint upon them the different devices required, which of course may be varied according to the order or wish of the architect.

A machine of the kind now under notice will also make tiles with alto or baso relievo, and consequently the manufacture may be extended to the production of slabs and plaques with ornaments in full relief, and for the purpose of filling up the faces of sunk panels or other plain surfaces which occur in every kind of architecture. For this purpose casts may be taken from Gothic tracery, monumental brasses, and the ornaments both of the Greek and Roman styles of architecture.

Among coloured things, for instance, a vast variety of very elegant embellishments may be obtained by imitating the scrolls and figures on the beautiful Etruscan vases and other ornaments so common to use in every museum in this country; as also the frescoes, or rather paintings of the ancient Egyptians.

Gothic ornaments and tracery of the most elaborate style, if not too deeply cut, may be introduced, which if made of a soft and easily-worked material, may be as hard and durable as stone-work itself, and as they may be made much cheaper than stone can be chiselled, simple means will be afforded for architects to decorate their designs for the interior of buildings, in the most easy and elaborate manner.

As the potters' art is now well understood, the variety of different coloured earths, &c., in use is very

ultimately produced, by judiciously blending and working party-coloured patterns.

I was much struck a little time since with the beauty of some Greek and Roman tiles, said to have been brought from the neighbourhood of Cabul, which if imitated and improved upon, will, I have no doubt, become in a little time a valuable acquisition to our architectural decorators' stock of standard ornaments.

As the operations of the machine now under notice are quick and precise, the first cost of all kinds of ornaments produced by it will be much reduced in price, compared with similar things now known to the profession.

I am, &c., your very truly,

JOSPH. LOCKWOOD, Engineer, &c.  
52, Lime-street, City.

### LONDON, ITS SIZE, AND POPULATION.

SIR,—Your remarks in your last number relative to my letter on this subject, which appeared in No. 48, have surprised me much, and no doubt others have been astonished by these comparisons, or they would not have been copied so frequently and in the distant places.

I feel the liberty of writing to you to say that I was much hurt to see "London" so misquoted by the *Times* on Thursday last, in their extract of the subject from a Cornwall newspaper. They have only made the slight error of more than 350,000 in "London" untrue and ridiculous.

I beg to say that the remarks upon "London" that you thought worthy of a place in your interesting work, were true to the facts, and prove them to be the last published government census.

With a hearty wish for your success in your arduous undertaking, I remain, Sir, your most obedient servant,

J. RAWSON WALKER.

P.S.—Would there be any harm in mentioning this *great mistake* of the *Times* in your next number, because any one taking up that article, and comparing it with the last census, would, of course, say the whole was false together?

16, Norton-street, Portland-place.

### MONUMENT AT ST. REMI.

SIR,—In your Number dated Jan. 13 appears a representation of a monument at St. Remi: I am not presuming to give any information upon the matter. It is stated by "Amateur" that the architect has very little projection compared with the advanced position of the columns. I agree with "Amateur" in not charging the architect with ignorance, for ignorance could not have produced such a work; but I cannot conceive how the effect can be as stated, and, as the architect must be manifest. As to preserving the pyramidal form, the principle is certainly one to be attended to; but bringing the entablature a few more inches in advance could not have seriously injured the pyramidal figure, particularly as the architect has made it. I think "Amateur" will not consider me severe in my observations. I make them merely because it is an error that many country builders practice, and one that cannot but be censured—that is, projecting pilasters five or six inches, and the architect, if you deem these few remarks worth the attention of your readers of a certain class, I should esteem their insertion a favour.

I am, Sir, yours respectfully,  
Newport, Jan. 22, 1864. JAMES FICCARD.

### PUBLIC WALKS.

SIR,—In THE BUILDER of the 16th December, 1863, you state that there is still in the hands of the architect, the cost of the 10,000*l*. voted by Parliament for "Public Walks." I had from you *Half a Packet* that the walk along the Humber bank is in a very dilapidated state; could any part of the sum be obtained towards repairing it, if an application were made by the inhabitants of Hull? As information you, or any correspondent, could give on this subject would, I have no doubt, be well held of by the inhabitants of Hull, and would greatly oblige,

A Struggler for Distinction,  
Liverpool, Jan. 29, 1864. E. J. L.

### "NATIONAL MONUMENTS."

SIR,—In the year 1816 the House of Commons voted two national monuments to commemorate the services rendered by the army and navy. I find by the able record of the committee of tales appointed by Parliament to decide upon the designs for the grand national monuments, held their final meeting in March, 1817, at the house of the Earl of Aberdeen. Mr. Wilkins's estimate for the Waterloo Monument was 200,000*l*, and that for Mr. Smirke's Naval Trophy was 100,000*l*. They were then intended to be immediately begun. The situation for placing these national monuments was Greenhill, at Derby, and Portland-place, in the circle and